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July 10, 2006

Commissioner for Patents
United States Patent and Trademark Office
Mail Stop **APPEAL BRIEF**
401 Dulany Street
Alexandria, VA 22314

Re: U.S. Patent Application No. 10/733,516
FOR: MULTIPLE SLAVE PISTON VALVE ACTUATION SYSTEM
Our Reference: 34090-06297

Dear Sir:

Transmitted herewith for filing in the U.S. Patent and Trademark Office are the following documents:

(1) Transmittal Form (1 page);

(2) Fee Transmittal (in duplicate - 2 pages); and

(3) Appeal Brief (19 pages).

Please date-stamp the enclosed copy of this letter, acknowledging receipt of the above-identified documents, and return it to us.

Sincerely yours,

DAVID R. YOHANNAN, Reg. No. 37,480

Enclosures

DRY/gw

PTO/SB/21 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	20

Application Number	10/733,516
Filing Date	December 12, 2003
First Named Inventor	RUGGIERO, Brian
Art Unit	3748
Examiner Name	ESHETE, Z.
Attorney Docket Number	34090-06297

ENCLOSURES *(Check all that apply)*

- [✓] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [✓] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [ ] Other Enclosure(s) (please Identify below):

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	KELLEY DRYE & WARREN, LLP		
Signature	Per David R. Yohannan		
Printed name	DAVID R. YOHANNAN		
Date	June 14, 2006	Reg. No.	37,480

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name		Date	

PTO/SB/17 (12-04v2)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($)	500.00

Complete if Known	
Application Number	10/733,516
Filing Date	December 12, 2003
First Named Inventor	RUGGIERO, Brian
Examiner Name	ESHETE, Z.
Art Unit	3748
Attorney Docket No.	34090-06297

METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____	x 0	= _____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____	x _____	= _____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims: Fee ($) _____ Fee Paid ($) _____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round up to a whole number) x	_____	= _____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): Appeal Brief	$ 500.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 37,480	Telephone 202.342.8400
Name (Print/Type)	DAVID R. YOHANNAN		Date July 10, 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re
Application of: **Brian Ruggiero**

Serial No.: **10/733,516** **Examiner: Z. Eshete**

Filed: **December 12, 2003** **Group Art Unit: 3748**

For: **MULTIPLE SLAVE PISTON VALVE ACTUATION SYSTEM**

Attorney Docket: **34090-06297**

MAIL STOP APPEAL BRIEF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Final Office Action dated February 21, 2006 and pursuant to 37 C.F.R. §§ 41.31 and 41.37, Appellant submits the following Appeal Brief.

APPEAL BRIEF

I. REAL PARTY IN INTEREST

The inventor of the application at issue is Brian Ruggiero, who has assigned all of his rights to the application to Jacobs Vehicle Systems, Inc ("JVS"). JVS is a wholly owned subsidiary of Danaher Corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to Appellant, Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending Appeal.

III. STATUS OF THE CLAIMS

Claims 1, 3-7, 20-23 and 28-31 are pending in the present Application and Claims 9-18 are withdrawn from consideration. Claims 2, 8, 19 and 24-27 are canceled. All pending claims were rejected in a Final Office Action dated February 21, 2006. Appellant filed an amendment after final rejection seeking to cancel Claim 31 for purposes of appeal. Appellant has not yet received an Advisory Action from the Office indicating that the amendment seeking cancellation of Claim 31 has been entered. The final rejection of pending Claims 1, 3-7, 20-23 and 28-30 is appealed. The rejection of Claim 31 is not appealed.

IV. STATUS OF AMENDMENTS

Appellant filed an amendment after final rejection seeking to cancel Claim 31 for purposes of appeal. Appellant has not yet received an Advisory Action from the Office indicating that the amendment seeking cancellation of Claim 31 has been entered. The rejection of Claim 31 is not appealed.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

In summary, a first embodiment of the claimed subject matter as claimed in independent Claim 1 is shown in Figure 2 of the Application in which a system **10** is provided for actuating two engine valves **40** spaced a first distance from each other. This embodiment is described at pages 9-12 at paragraphs 25-32 of the Application. The system includes a housing **12** having a first slave piston bore, a second slave piston bore, and a passage **14** adapted to provide hydraulic fluid to the first and second slave piston bores. A first slave piston **16** is slidably disposed in the first slave piston bore and a second slave piston **18** is slidably disposed in the second slave piston bore. The first and second slave pistons **16** and **18** are spaced a second distance from each other, wherein the first distance (between the engine valves **40**) is different than the second distance (between the first and second slave pistons **16** and **18**). The system further includes a master piston **20** operatively connected to the housing passage **14**, a hydraulic fluid control valve **70** operatively connected to the housing passage **14**, and a valve bridge **42** disposed between (i) the first and second slave pistons **16** and **18**, and (ii) the two engine valves **40**.

With continued reference to Figure 2, in a second embodiment, the claimed

subject matter as claimed in independent Claim 23 is a method of actuating two or more engine valves **40** in an internal combustion engine using a system having a master piston **20** hydraulically linked to two or more slave pistons **16** and **18**. This embodiment is described at pages 9-12 at paragraphs 25-32 of the Application. The method includes the steps of imparting a linear motion to the master piston **20**; imparting a linear motion to the two or more slave pistons **16** and **18** responsive to the master piston motion; actuating the two or more engine valves **40** responsive to the motion of the two or more slave pistons **16** and **18**; and seating the two or more engine valves **40** by throttling hydraulic fluid flow past a single point **60** located between the two or more slave pistons **16** and **18,** and the master piston **20** thereby hydraulically opposing the linear motion of the two or more slave pistons as the engine valves **40** approach valve seats.

Other embodiments of the invention are disclosed and claimed in dependent claims.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 3-7, 20-22 and 29 are rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 6,112,710 to Egan, III et al. (hereinafter, "Egan"), in view of U.S. Patent No. 6,386,160 to Meneely et al. (hereinafter "Meneely").

Claims 7 and 28 are rejected under 35 U.S.C. § 103 as obvious over Egan in view of Meneely in further view of U.S. Patent No. 6,412,457 to Vorih (hereinafter "Vorih").

Claim 23 is rejected under 35 U.S.C. § 103 as obvious over Egan in view of U.S. Patent No. 5,619,965 to Cosma et al. (hereinafter "Cosma") and further in view of U.S. Patent No. 6,474,277 to Vanderpoel (hereinafter "Vanderpoel").

Claim 30 is rejected under 35 U.S.C. § 103 as obvious over Egan in view of Meneely and further in view of U.S. Patent No. 4,153,016 to Hausknecht.

The issues presented are whether or not each of the rejected claims is obvious over the combination of references applied by the Examiner. The Egan reference is the primary reference in each rejection. Thus, the issue of whether or not any of the rejected claims is obvious over Egan in combination with any of the other references is common to all of the rejections.

VII. ARGUMENT

Applicant respectfully traverses the rejection of Claims 1, 3-7, 20-23 and 28-30 as being obvious over different combinations of prior art. Reconsideration and allowance of the application is respectfully requested.

A. Claims 1, 3-7, 20-22 and 28-30 are nonobvious over Egan and Meneely.

Claims 1, 3-7, 20-22 and 29 are rejected as being obvious under 35 U.S.C. § 103(a) over Egan in view of Meneely. Claims 7 and 28 are rejected as being obvious over Egan in view of Meneely and in further view of Vorih. Claim 30 is rejected as being obvious over Egan in view of Meneely and in further view of Hausknecht. In order to establish a *prima facia* case of obviousness, three basic criteria must be met. *See* MPEP § 706.02(j) and §2143; In re Vaeck, 947 F.2d 488, 20 USPQ.2d 1438 (Fed. Cir. 1991). First there must be some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *See* MPEP § 2143.01; In re Nielson, 816 F.2d 1567, 1569 (Fed. Cir. 1987), citing In re Linter, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Second, there must be a reasonable expectation of success. *See* MPEP § 2143.02; In re Merck & Co., Inc., 800 F.2d 1091, 231 *SUSPQ* 375 (Fed. Cir. 1986). Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* MPEP § 2143.03; In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Appellant's disclosure. In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991) (emphasis added).

Claim 1 recites a valve bridge disposed between (i) first and second slave pistons and (ii) two engine valves. The two engine valves are recited to be spaced apart by a first distance, and the first and second slave pistons are recited to be spaced apart by a second distance, wherein the first distance is different than the second distance. Claims 3-7, 20-22 and 28-30 all depend directly, or through intervening claims, on Claim 1, and thus include these limitations. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. MPEP § 2143.03 citing In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

The Office acknowledges that Egan fails to disclose a valve bridge disposed between first and second slave pistons and two engines valves, wherein the first distance (that between the engine valves) is different than the second distance (that between the slave pistons). *See* Office Action, Feb. 21, 2006 at p. 3. In view of this

difference between Claim 1 and Egan, the Office asserts that the claimed combination is obvious because Meneely teaches a valve bridge disposed between first and second slave pistons and two engine valves wherein the distance between the slave pistons is different than the distance between the two engine valves. *Id.* Specifically, the Office relies upon the teaching of Meneely as illustrated in Figures 1 and 10 as disclosure of a system in which the space between first and second slave pistons is different from the space between two engine valves. *Id.* The Office's reliance on Meneely is misplaced because one of ordinary skill would not have been motivated to combine Egan and Meneely, and there would not have been any reasonable expectation of success had such motivation existed.

First, the rejections fail to specify either the location in Egan or Meneely of a suggestion or motivation to modify Egan's system to meet the claims, or evidence of the general availability in the art of knowledge that would motivate one of ordinary skill to make such a modification. The Office Action fails to identify any language in Egan or Meneely that would motivate one of ordinary skill in the art to modify Egan to include slave pistons spaced differently then engine valves. Accordingly, the rejections must explain how the motivation for the modification was generally available to one of ordinary skill in the art. In re Kotzab, 217 F.3d 1365, 1371, 55 U.S.P.Q.2D (BNA) 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); In re Rouffet, 149 F.3d 1350, 1359, 47 U.S.P.Q.2D (BNA) 1453, 1459 (Fed. Cir. 1998) ("[T]he Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed

combination... the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the invention obvious."); In re Fritch, 972 F.2d 1260, 1265, 23 U.S.P.Q.2D (BNA) 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

The Examiner has not provided this explanation. The only explanation that has been offered is an assertion that such modification would have been motivated by a general desire to "achieve rugged, economical apparatus that is also reliable." *See* Office Action, Feb. 21, 2006 at p. 3. This assertion is hindsight motivation based on Appellant's disclosure. Such general motivation exists in almost all cases of improvements. If such a general statement of motivation were acceptable, it would completely eviscerate the requirement that there be some affirmative statement of the motivation for modification of a prior art reference in the first place. The rejections should be withdrawn in view of the lack of any identifiable suggestion or motivation in the prior art to modify the Egan system as needed to meet the claims.

Despite the lack of motivation, the Office asserts the combination with Egan may be made because Meneely discloses "a valve bridge disposed between the first and second slave pistons and the two engine valves." *Id.* (emphasis added). However, Meneely does not disclose a valve bridge disposed between two slave pistons and two engine valves wherein the slave pistons and the engine valves are separated by different distances. Figure 1 of Meneely illustrates pistons **96** and **98** which are

separated by the same distance as the engine valves **16** and **18**. *See* Meneely at Fig. 1. Further, the pistons **96** and **98** are not "slave pistons" in that they are not actuated by a master piston. The meaning of "slave pistons" in the claims of the subject Application is clearly set forth in the specification. *See* pages 2-4, paragraphs 6-8 of the Application. The pistons **96** and **98** disclosed in Meneely are hydraulic pistons that are extended by trapping hydraulic fluid in passage **110** by applying hydraulic pressure to another piston member **140**. *See* Meneely at column 5, line 43 – column 6, line 29. Meneely does not disclose a master piston to actuate the pistons **96** and **98**, and therefore the pistons in Meneely cannot be considered "slave pistons."

In view of the foregoing, one of ordinary skill in the art could not have been motivated by the teaching in Meneely to modify Egan to include slave pistons separated by different distances than the engine valves. Meneely illustrates hydraulic pistons separated by the same distance as the engine valves. Although Meneely references in passing that the position of the hydraulic pistons "could be altered" if an "additional piston is added," it provides no explanation of why one what want to do this in a system that utilizes master and slave pistons as opposed to the type of hydraulic pistons disclosed in Meneely. *See* Meneely at column 5, lines 43-50. The fact that the positions of the hydraulic pistons in Meneely could be altered simply because a third piston is added would not have suggested to one of ordinary skill in the art the advantage realized by modifying the distance between two slave pistons as claimed in the present application. Thus, motivation for the required combination is further lacking.

With respect to Figures 9-16 of Meneely, a different embodiment of the Meneely invention is illustrated in which an actuator piston **226**, which is <u>not</u> a slave piston, is

disposed in a rocker arm in combination with a first member **222**, which is also not a slave piston. *See* Meneely at column 7, line 13 – column 9, line 45. Like the embodiment in Figure 1 of Meneely, there is no master piston used in the Figs. 9-16 embodiment of Meneely, and accordingly, the actuator piston **226** cannot be a "slave piston." More importantly, however, the first member **222** shown in Figures 9-16 of Meneely is not a hydraulic piston of any type which acts on the valve bridge. The hydraulic passages provided in the first member **222** merely control the application and release of hydraulic fluid to the actuator piston **226**. *Id.* at column 7, lines 48-52. The first member **222** opens the engine valves as a result of a mechanical force applied from the rocker arm to the upper end of the first member, not as the result of a hydraulic force on the first member. *Id.* at column 9, lines 8-30. Thus, this embodiment of Meneely does not even disclose two hydraulic pistons which act on a valve bridge and are spaced from each other a distance different from the spacing of the engine valves, much less disclose two hydraulic slave pistons spaced from each other a different distance that the engine valves.

The differences between the Figure 9-16 embodiment of Meneely and the claimed invention make it impossible to conclude that one of ordinary skill in the art would have been motivated to combine the teachings of Meneely with Egan. Egan uses a master piston to actuate a slave piston. The Figure 9-16 embodiment of Meneely uses a sliding valve spool located in the first member **222** to control the application and release of hydraulic fluid to the actuator piston **226**, however, no master piston is used to drive the actuator piston **226** downward. *Id.* at column 8, line 47 – column 9, line 36. Instead, the actuator piston **226** shown in Meneely is merely extended by the

application of low pressure hydraulic fluid, and it is the downward rotation of the rocker arm in which the actuator piston is located which acts on one of the two engine valves. *Id.* Thus, Meneely does not use a master piston to actuate any slave pistons; which demonstrates that combining Meneely with Egan would not have been obvious to one of ordinary skill in the art.

Still further, even if the Figure 9-16 embodiment of Meneely did disclose the use of slave pistons, and could be combined with Egan, which it does not and cannot, one of ordinary skill in the art would not have had a reasonable expectation of success by combining the teachings of Egan with Meneely. In order to satisfy the second requirement of all obviousness rejections – there must be a reasonable expectation that the modification of the reference would result in success. *See* MPEP § 2143.02; In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). With reference to Figures 9-16 of Meneely, the actuator piston **226** does not act on the crosshead **220**, but rather acts on a sliding member **230** which extends through the crosshead. *Id.* at column 9, lines 19-22. As a result, while the actuator piston **226** and the first member **222** are spaced differently than the first and second engine valves, they are not spaced equidistant from the first and second engine valves. Thus, if both the actuator piston **226** and the first member **222** were substituted into the fixed overhead housing of Egan as surrogates for slave pistons, the downward displacement of these unequally spaced pistons with an equal hydraulic force would produce an unequal opening force on the crosshead **220.** This unequal opening force would open the engine valves unequally and the engine valve stems would be exposed to a side load causing damaged or failure. Thus, one of ordinary skill in the art would not have expected to produce a

successful valve actuation system by combining the teaching of differently spaced hydraulic pistons from Meneely with the system disclosed in Egan. Accordingly, Claim 1, and Claims 3-7 20-22 and 28-30, which all depend directly or through intervening claims on Claim 1, are patentable over Egan in view of Meneely.

B. *Claim 4 is nonobvious over Egan in view of Meneely.*

Notwithstanding the fact that Claim 4 is patentable in view of the patentability of Claim 1, as explained above, the limitation(s) added in Claim 4 further distinguish it over the prior art relied upon.

Claim 4 recites "a hydraulic fluid opening adapted to provide hydraulic communication between (i) the housing passage and (ii) the first and second slave pistons bores" and "means for selectively occluding the hydraulic fluid opening." An embodiment of the hydraulic fluid opening and the occluding means are shown in Figure 2 of the present application as "internal valve seating device **60**" and the opening in which it is disposed. *See* page 9, paragraph 25 of the subject Application. It is clear from the express language in Claim 4 and the specification of the subject Application that a single hydraulic fluid opening must be provided between the housing passage and both slave piston bores. Figure 2, elements "231, 25, 243, 23, 21" of Egan are asserted by the Office to provide the requisite disclosure to meet Claim 4. *See* Office Action, Feb. 21, 2006 at p. 3-4. With respect to Egan, element 231 is a valve seating device, element 25 is an accumulator, element 243 is a conduit, element 23 is a slave piston assembly, and element 21 is a master piston assembly. *See* Egan at column 5, line 36 – column 6, line 4. Given these definitions of the elements, Egan does not disclose a hydraulic fluid opening between a housing passage (conduit 243) and two

slave pistons. Furthermore, in Egan there is no single means for occluding provided in a hydraulic fluid opening positioned between a single housing passage and two slave piston bores. Accordingly, Claim 4 distinguishes over Egan in view Meneely independent of the reasons that Claim 1 distinguishes over this combination of references.

C. *Claim 6 is nonobvious over Egan in view of Meneely.*

Notwithstanding the fact that Claim 6 is patentable in view of the patentability of Claim 1, as explained above, the limitation(s) added in Claim 6 further distinguish it over the prior art relied upon.

Claim 6 recites that "the second slave piston has a greater mass than the first slave piston." The Office asserts that "Meneely discloses the second slave piston has a greater mass than the first slave piston." *See* Office Action, Feb. 21, 2006 at p. 4. As noted above in Section VII. A., Meneely does not disclose any slave pistons at all, much less two slave pistons with different masses. The references relied upon do not disclose all elements of the claimed combination. Accordingly, Claim 6 distinguishes over Egan in view Meneely independent of the reasons that Claim 1 distinguishes over this combination of references.

D. *Claim 23 is nonobvious over Egan in view of Cosma and Vanderpoel.*

Claim 23 is rejected as being obvious over Egan in view of Cosma and further in view of Vanderpoel. Claim 23 recites the step of seating the two or more engine valves by throttling hydraulic fluid flow past a single point located between the two or more slave pistons and the master piston.

Figure 3 of Egan is relied upon to disclose the invention of Claim 23 with the exception of the foregoing seating step. *See* Office Action, Feb. 21, 2006 at p. 6-7. Cosma and Vanderpoel are relied upon as teaching valve seating control generally and throttling of fluid flow to control valve seating, respectively. *Id.* None of the prior art teaches throttling flow past a single point to seat two or more engine valves which are actuated by two or more slave pistons.

It would not have been obvious to one of ordinary skill in the art to arrive at the invention of Claim 23 by combining the prior art relied upon. The individual slave piston bores provided in Figure 3 of Egan connect to a common hydraulic passage such that there would be no place to provide the throttling device taught by Vanderpoel in a manner that would enable it to throttle the flow of hydraulic fluid from both slave pistons. Because the throttling device taught by Vanderpoel would likely be inoperable in the system taught by Egan, one of ordinary skill in the art would not have had a reasonable expectation of success by combining Egan with Vanderpoel.

VIII. CLAIMS APPENDIX

1. A system for actuating two engine valves each having an axial center spaced a first distance from each other, said system comprising:

a housing having a first slave piston bore, a second slave piston bore, and a passage adapted to provide hydraulic fluid to the first and second slave piston bores;

a first slave piston slidably disposed in the first slave piston bore and a second slave piston slidably disposed in the second slave piston bore, said first and second slave pistons each having an axial center spaced a second distance from each other;

a master piston operatively connected to the housing passage;

a hydraulic fluid control valve operatively connected to the housing passage; and

a valve bridge disposed between (i) the first and second slave pistons and (ii) the two engine valves,

wherein the first distance is different than the second distance.

3. The system of Claim 1, further comprising a valve seating device disposed in the housing passage.

4. The system of Claim 3 wherein the valve seating device comprises:

a hydraulic fluid opening adapted to provide hydraulic communication between (i) the housing passage and (ii) the first and second slave piston bores; and

means for selectively occluding the hydraulic fluid opening.

5. The system of Claim 3 wherein the valve seating device is disposed substantially directly above the first slave piston.

6. The system of Claim 5 wherein the second slave piston has a greater mass than the first slave piston.

7. The system of Claim 3 wherein at least one slave piston is solid throughout.

8. (Canceled).

9-18. (Withdrawn).

19. (Canceled).

20. The system of Claim 1 wherein the first and second slave pistons are disposed above the valve bridge at central locations relative to the locations at which the valve bridge contacts the first and second engine valves.

21. The system of Claim 1 wherein the valve actuation system is a variable valve actuation system.

22. The system of Claim 1 wherein the valve actuation system is a fixed timing valve actuation system.

23. A method of actuating two or more engine valves in an internal combustion engine using a system having a master piston hydraulically linked to two or more slave pistons, comprising the steps of:

imparting a linear motion to the master piston;

imparting a linear motion to the two or more slave pistons responsive to the master piston motion;

actuating the two or more engine valves responsive to the motion of the two or more slave pistons; and

seating the two or more engine valves by throttling hydraulic fluid flow past a single point located between the two or more slave pistons and the master piston thereby hydraulically opposing the linear motion of the two or more slave pistons as the engine valves approach valve seats.

24-27. (Canceled).

28. The system of Claim 3 wherein the valve seating device is integrated into the first slave piston.

29. The system of Claim 1 wherein the first distance is greater than the second distance.

30. The system of Claim 1 wherein the master piston is oriented substantially perpendicular to the first and second slave pistons.

31. (Canceled).

IX. EVIDENCE APPENDIX

Not applicable.

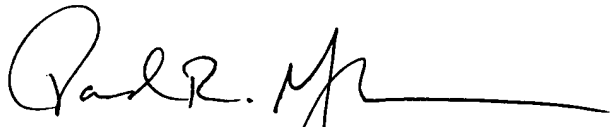
X. RELATED PROCEEDINGS APPENDIX

Not applicable.

XI. CONCLUSION

In light of the above arguments, Appellant respectfully submits to the Board that the present rejections are untenable, and the Application is in condition for allowance.

Respectfully Submitted,



Dated: July 10, 2006

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